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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/602,059	06/23/2000	Charles M. McKenna	V0077/7117 WRM	9493

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EXAMINER

EL-SHAMMAA, MARY A

ART UNIT PAPER NUMBER

2881

DATE MAILED: 11/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/602,059

Applicant(s)

MCKENNA ET AL. 

Examiner

Mary A. El-Shammaa

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-57 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- ☐ Interview Summary (PTO-413) Paper No(s) ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 4, 10, 11, 15, 17-19, 24, 25, 30, 32, 33, 37, 39, 40, 45, 48, 49, 52 are rejected under 35 U.S.C. 102(b) as being anticipated by Ogata et al. (5,751,002).

Regarding claims 1 and 30, Ogata discloses in Figure 8 an ion implanting apparatus and method thereof comprising an ion source (1) for generating an ion beam at a first voltage, an analyzer (2) for separating unwanted components from the ion beam, a beam transport device (11, 12) for transporting the ion beam through the analyzer, a deceleration stage (5) downstream of the analyzer, a beam filter comprising a magnet (6) downstream of deceleration stage, and a target site (10).

Regarding claims 3 and 17, Ogata discloses in Figure 8 analyzing magnet (4) and a resolving slit (4) so that ions are passed through the slit by the magnet.

Regarding claims 10, 11, 25, 32, and 49, said deceleration stage in Figure 8 comprises a decelerating electrode (5a) and a suppression electrode (5b), which suppress the flow of the electrons in the ion beam from one energy region to another.

Art Unit: 2881

Regarding claims 15 and 37, Figure 12 illustrates, in addition to the features of claim 1, a second beam transport device (13) for transporting the ion beam through the beam filter (6) and a second deceleration stage (8) downstream of the beam filter.

Regarding claims 18 and 39, said beam filter comprises a magnet (6) which deflects ions in the ion beam.

Regarding claims 24, said first and second deceleration stage in Figure 12 each comprise a decelerating electrode (5a and 8a) and a suppression electrode (5b and 8b).

Regarding claims 4, 19, 33, 40, and 48, Ogata discloses in Figure (15) said beam filter comprising an angle corrector magnet (15) for directing the ions in the ion beam along substantially parallel trajectories (Col. 8, Lines 48-65).

Regarding claim 45, Ogata discloses in Figures 8 and 9 an ion implanting apparatus and method thereof comprising an ion source (1) for generating and accelerating an ion beam at a first voltage, a beamline module (11) containing a beamline component (11e), a beam transport device (12), a beam filter (6) downstream of beamline module, a deceleration stage (5) between beamline module and beam filter, and a target site (10).

Regarding claim 52, Ogata discloses, in addition to the features of claim 45, in Figure 14 a second beamline module (7) downstream of first beamline module (11) comprising a beam filter (6) and a second deceleration stage (8) situated between the second beamline module and the target site.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 13, 14, 20, 27-29, 34, 41, 42, 46, 47, 53-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogata in view of Ito et al. (5,399,871).

Ogata discloses a beamline module comprising an analyzer, a beam filter with an angle correcting magnet, and an embodiment with first and second deceleration stages each including a deceleration electrode and a suppression electrode, but Ogata does not disclose an ion planter comprising an arc chamber and a first power supply, nor does Ogata disclose said ion implanter comprising a second and third power supply. Ito discloses an arc chamber and a first power supply (46) (Col. 5, Lines 23-30). Ito also discloses a second power supply (15) and a third power supply (32) (Col. 5, Lines 31-32). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the arc chamber and first power supply for biasing the arc chamber because this would result in the ion beam being shielded from the voltage within the chamber. It would have also been obvious to include a second and third power supply because these power supplies would bias the components of the analyzer and beam filter, respectively.

Claims 2, 6, 16, 31, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogata in view of Ito et al. in further view of Harrison et al. (5,747,936).

Ogata and Ito do not disclose the target being at ground. Harrison discloses the target site being grounded (Col. 6, Lines 55-58). When holding the target site at ground, the final energy is equal to the charge of the ions times the first voltage, therefore it would have been obvious to include the teachings of Harrison and keep the target site at ground potential.

Claims 7, 8, 12, 21, 22, 26, 35, 43, 50, 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogata in view of Enge (4,276,477).

Although Ogata discloses an ion source for producing an ion beam, Ogata does not disclose the shape of the beam. Enge discloses the ion beam being ribbon-shaped and uniform across its width (Col. 6, Lines 12-33). This results in the beam being focused in a vertical plane onto the target. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the ion source of Ogata with the teachings of Enge because this would result in the ions being implanted into the target uniformly, improving beam transmission.

Claims 9, 23, 36, 44, 51, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogata in view of Ono et al. (5,343,047).

Ogata does not disclose an electron generator for supplying electrons to the ion beam. Ono discloses an electron generator in Figure 5 for adding electrons to the ion beam (Col. 3, Lines 44-45). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the ion source of Ogata with the electron generator taught by Ono because supplying electrons to the electron beam limits beam expansion.

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See U.S. Patent 6,111,260.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary A. El-Shammaa whose telephone number is 703.308.0851. The examiner can normally be reached on M-F(8:30am-5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on 703.308.4116. The fax phone numbers for the organization where this application or proceeding is assigned are 703.872.9318 for regular communications and 703.872.9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.872.9317.

mae
November 1, 2002


JOHN R. LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800